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## LEAD FRAME DESIGN FOR INCREASED CHIP PINOUT

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ABSTRACT

An integrated circuit (IC) module incorporates a modified lead frame having a die attach platform, a plurality of leads extending away from the die attach platform, and a plurality of bus bars surrounding the die attach platform. Multiple I/O pads on an IC chip mounted on the die attach platform requiring a common power supply voltage or communication signals are connected to a common bus bar, allowing a greater variety of signals to be provided from the fixed number of IC-PCB interconnections on the IC module. The bus bar design is readily incorporated into all IC module packaging techniques using conventional manufacturing processes. An embodiment of a lead frame for a lead frame BGA package also includes circular attachment pads at the ends of all leads in order to provide a circular area for mounting of solder balls to ensure consistent solder flow and uniform final solder ball profile without requiring circular vias.

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